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## DEVELOPMENT OF A MODEL FOR CHOOSING AN EFFECTIVE METHOD FOR STERILIZING PLANT EXPLANTS

*The article is devoted to the creation of adequate models for the management and optimization of processes in biotechnology, used in solving problems of biodiversity conservation. The paper proposes an approach to ensuring the choice of an effective method for sterilizing plant explants based on situational modeling and fuzzy logic. The results of experiments to determine the adequacy of the models are presented.*

*Keywords: microclonal reproduction of plants, situational modeling, selection of an effective method for sterilizing plant explants, fuzzy logic*

in vitro

( )

( )

-

in vitro,

[1]:

$$\{PlantSit, T, PS, G, H\}, \quad (1)$$

PlantSit -

TKujmKTW

- ,  
*PlantSit*,  
*PS*;  
*PS* - ,  
*PlantSit* , ;  
*G* -  
*PlantSit*, - , « », « -  
» . . ;  
*H* - , ,  
*G*, , : .  
, -  
*in vitro* « »,  $\wedge_2$  -  
« », «  
» *V*, « » -  $(1 - \wedge_2)$  . . ).  
*H*,  
, ,  
. .  
- [2].  
*in vitro* :  
 $I = \langle \dots \rangle$ , ' = « », " = « ».  
 $I = \langle \dots \rangle$   
70 %, ,  
*in vitro*,  
. ,  
( ,  
), « »  
( ). 5 9 ,  
3:  
= { *Ti*, ' , " } = { *Ti*, 2, , 4, 5 }.<sup>(2)</sup>  
 $2 = \langle \dots \rangle$   
( 50 70 %) , ( ,  
),  
*in vitro*,  
. 3 = « » 10  
50 ( ,  
),  
*in vitro*,  
 $4 = \langle \dots \rangle$  ».  
*in vitro* , 10  
( ,  
, ,

*in vitro*,

*PlantSit*

*in vitro*

*PlantSit**PlantSit.*

$$PlantSit = (PlantSit(st), PlantSit(med)), \quad (3)$$

$$PlantSit(st)$$

*in vitro*,

(

$$\vdots$$

;

•  
;

$$);$$
$$PlantSit(med)$$

*in vitro*

(1)

$$PlantSit(st)$$

*PlantSit*(*med*):

$$\{PlantSit(st), Tst, PSst, Gst, Hst\}, \quad (4)$$

$$\{PlantSit(med), Tmed, PSmed, Gmed, Hmed\}.$$

 $T_{st} \quad T_{med} -$ 
$$PlantSit(st)$$
$$PlantSit(med)$$
 $T_{st}$  $PSst,$  $\bar{T}_{med}$  $PSmed,$ 

*in vitro*

$$T_{st}i = T_{med}i = \ll \quad \gg;$$
$$T_{st}^2 = T_{med}^2 = \ll \gg;$$
$$T_{\mathcal{Z}} = T_{med3} = \ll \gg.$$
$$Tst = \{Tst1, Tst2, Tst3\},$$
 $T_{med} \{ T_{med1}, T_{med2}, T_{med3} \}$ *PlantSit*

*in vitro*»,

$$(\quad).$$

: « », « ».

*PlantSit.*

$$\begin{array}{cc} (PlantSit(st) & T_{stl}) & (PlantSit(med) & T_{medl}) \\ (PlantSit(st) & T_{stm}) & (PlantSit(med) & T_{stm}) \end{array}$$

 $\wedge$ 

$$T_{st}, (i = 1, 3) \quad T_{me} d_m (i = 1, 3) - \frac{PlantSit(i) \cdot T / (PlantSit(st) \cdot PlantSit(med))}{T_{stn} \cdot G \cdot T_{sp} \cdot T_{me} \cdot d_m \cdot G} \quad (5)$$

$T_{med}; PlantSit = T_i (I = 1, 5) -$

,  
*in vitro*

$PS_{sp} \quad PS_{med}$  (

),

$T_{stn} \quad T_{medm}$

,  
*in vitro*.

/iTst,,,  $P_t i$

*in vitro*),

*in vitro*,

« »

),

(

),

$PlantSit$

$PlantSit(st) \quad PlantSit(med)$   
 $P$

RULE,

*Mamdani*.

(6),

« », :

RULEi:  $(PlantSit(st) \quad j^{^^}) \quad (PlantSit(med) \quad Tj^{^g dmi}) \quad PlantSit \quad i$

RULEp!  $(PlantSit(st) \quad j^{^^}) \quad (PlantSit(med) \quad Tj^{^g_d^{^^}) \quad PlantSit \quad 1^{^}$ , (6)

RULEp:  $(PlantSit(st) \quad j^{^^}) \quad (PlantSit(med) \quad Tj^{^g_d^{^^}) \quad PlantSit \quad 1^{^}$ ,

$= 5, \quad = 5, 5, \quad = 5, 5, I = 5, 5;$

$T_{sc,,} - \quad - \quad PlantSit(st),$

$G T_{st};$

$Tj_{gd,i} -$

$PlantSit(med),$

$T_{med};$

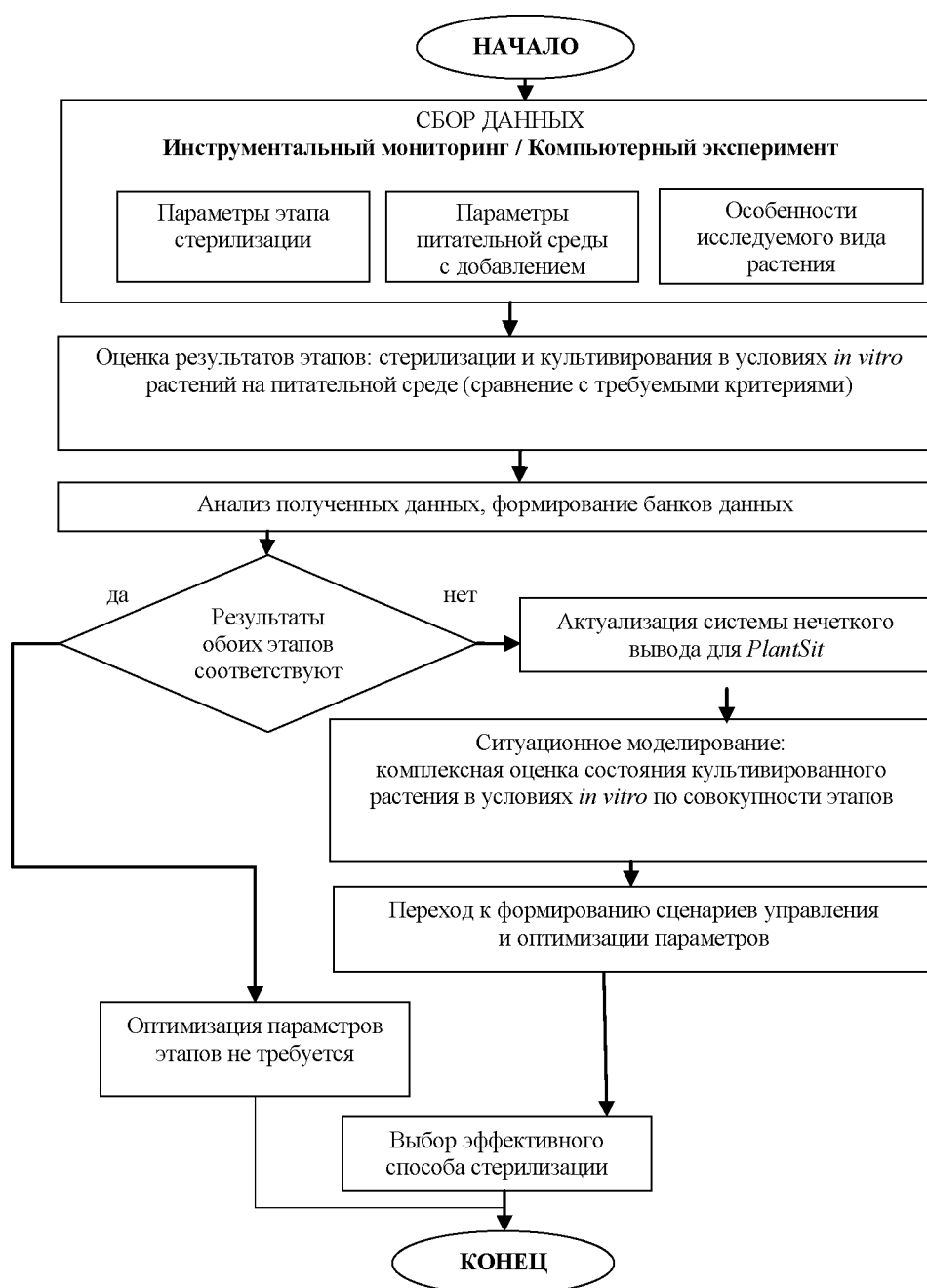
$PlantSit,$

,  $i^{^GT}$ .

1

*in vitro*,

[3].



1 -

*i'n vitro*,

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